

Ty-Glas Extra Care Home - Rainwater Harvesting

Client:	Linc Cymru
Building Type:	68 room extra care facility
Roof:	Shallow pitch membrane with syphonic drainage
Catchment Area:	2,300m ²
Rainwater Apps:	76 WCs for resident and staff use
Sustainability:	BREEAM - Excellent
Built:	2009



Rainwater Harvesting Requirements

Rainwater harvesting technology was selected to help achieve a high BREEAM rating — one of the conditions of funding the new building. The rainwater demand for WC flushing is very high at 7 flushes per WC per day, 7 days a week, 365 days a year. This demand puts a high load on the system performance and highlights the need of a well designed, installed and specified rainwater recovery solution. With no maintenance downtime available due to round the clock operation Ecozi proposed the flagship product — HyproDuo. The high local rainfall in Cardiff and the roof area yield 1,850m³ of rainwater every year. Due to the site topography, two precast concrete tanks were required to collect the whole roofs rainwater. The system efficiency is estimated at 85% minimising mainswater consumption. Both the 23,000L precast tanks are located under vehicular areas, and the rainwater is mechanically filtered before entering the tanks via self enclosed stainless steel 380 micron sieves.



Each 23,000L precast concrete tank was placed into the final position by truck mounted crane. Only a crushed base is required and no concrete backfill. The precast tanks saved £3,000 each by eliminating a concrete base and backfill that would have been required with alternative GRP tanks. By eliminating the concrete cure time 2 days were also saved on installation time. The precast tanks have a standard surface load rating suitable for a 40t truck, saving additional structural design cost.



The HyproDuo is state-of-the-art hybrid architecture with a 250L intermediary tank inside the plant room located appliance. Advanced logic control and premium Wilo pumps provide rainwater direct to WCs upon demand



rainwater harvesting systems



Two HyproDuo's feed all WCs and a link pipe between the two appliances provides single system operation to the whole building in the even of maintenance requirements. The factory built and tested appliances just require simple hook-ups and three electrical plug and socket connections prior to commissioning by Ecozi.

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